



BY-PRODUCTS: Jeff Lillie turns used vegetable oil from restaurants into an eco-friendly fuel.

FILL IT UP WITH BIODIESEL

■ **The Florida Keys has its first biodiesel company, which turns used vegetable oil from restaurants into eco-friendly fuel for vehicles and boats.**

BY CAMMY CLARK
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MARATHON — Vegetable oil once used at Florida Keys restaurants and backyard fish fries is being processed into green fuel for trucks, tiki torches and a 53-foot sailboat that offers eco tours to the coral reef.

The environmentally sensitive island chain now has its first biodiesel production company.

Marathon BioDiesel is the result of seven years of effort by Jeff Lillie, a former commercial fisherman of spiny lobster and stone crabs. Lillie said he and his accountant wife have spent their life savings, about \$200,000, to get the venture off the ground.

At age 59, he says his motive is not to get rich but to do his part to help the environment, especially the ocean.

"We can't go: 'Timeout. I want to go to Earth 2,'" he said.

Capt. Jeff Bowman, co-owner of Namaste' Sailing Charters of Key West, is one of Lillie's clients. He started off using a 50 percent blend and now uses 100 percent biodiesel after spending about \$50 to modify the engine's fuel lines. Nauseating, dirty fumes no longer belch from the diesel engine. His sailboat's engine runs quieter and smells better.

"People walk down our dock trying to find the Chinese restaurant," Bowman said. Others say it smells like French fries.

He had previously used biodiesel — which is less toxic than table salt and biodegrades at the same rate as sugar — to fuel the charter sailboat when operating out of Pensacola. But after moving to the Keys in 2008, he could not find a local biodiesel distributor until discovering Lillie's company on Facebook.

"I think it is high time we have someone in the Keys doing this," said Key West High School teacher Josh Clearman, whose stu-



PHOTOS BY CAMMY CLARK/MIAMI HERALD STAFF

RUNS WELL: Jeff Lillie fills his Ford truck with 100 percent biodiesel fuel his company produced.

dents have been making biodiesel in the school's Alternative Energy Center for four years to run. So far, it's only an educational endeavor to run an old Mercedes.

While biodiesel technology has been around for more than a century, it plays only a relatively small part in the United States' fuel consumption. The Jefferson, Mo.-based National Biodiesel Board has 170 biodiesel plant members from around the country. They produced about 1 billion gallons in the past year for a road diesel market of about 40 billion gallons annually, said Jessica Robinson, the board's director of communications.

"It really is just a start," she said. "The intent of the biodiesel industry is to displace 5 percent of the on-road diesel market by 2015."

Robinson said it's not known how many small enterprises like Lillie's are in operation.

Getting such a venture started is not easy, Lillie said. He has struggled with financing and navigating the sea of federal, state and local agencies. He has gone without a paycheck for eight months. His one employee is compensated with a trailer to live in, paid utilities and a "few bucks here and there."

"But I think we're finally over the hump," Lillie said.

The company finally has acquired all the permits and met the regulations to legally sell the biodiesel to the public, Lillie said. He has about 3,000 gallons ready for the market at \$3.75 per gallon, cheaper than the diesel that is be-

ENERGY

Vegetable oil turned into fuel

◆ BIODIESEL, FROM 10B

ing sold across the street at the Chevron Station.

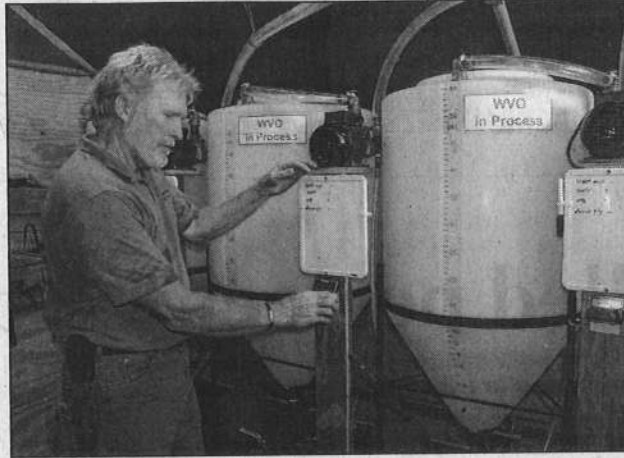
He accepts only cash now, until he can afford a credit card machine. He is trying to come up with \$1,250 to fund an independent lab's test of the biodiesel to receive the federal government's seal of approval for sale to government agencies and for tax credits.

The effort has required research and ingenuity, using a shoestring budget to put together the equipment needed in the multi-step, 24-hour process that can be dangerous if not done properly.

Lillie estimates he made about 100 40-gallon test batches to come up with the most pure fuel he could.

Each batch is internally tested for quality with several tests. Lillie's fuel also passed the test of a "biodiesel freak left over from the 60s." The man dipped his finger into the processed vegetable oil, proclaiming it good.

"If it's got too much methanol it burns your tongue," the man explained to Lillie. "If not enough, there is no tang. This has just the right



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COMPLICATED: Jeff Lillie says it takes about 24 hours and 40 steps to turn vegetable oil into fuel.

amount of tang."

Lillie plans to turn the glycerin byproduct into soap and the used sawdust, which takes out impurities in the fuel, into fire-starters.

The two Florida Keys utility companies both have been running their vehicle fleets on biodiesel blends since 2007, purchasing the fuel from distributing companies on the mainland.

Keys Energy Services in the Lower Keys used 27,435 gallons of a 5 percent biodiesel blend in the past year to fuel its fleet of about 30 vehicles. Spokesman Julio

Barroso said the utility company was using a 20 percent blend, but found it required more maintenance, especially the changing of filters.

Florida Keys Electric Cooperative in the Upper Keys also fuels its fleet of 33 vehicles and equipment on biodiesel, but at a 50 percent blend. The utility had used a higher percentage of biodiesel, but found it took away some of the power of the big bucket trucks.

Initially, the electric co-op discovered that the biodiesel created more vehicle

maintenance because the green fuel helps clean out the built up junk in engines from regular diesel. But in the long run, the engines are cleaner and require the same or less maintenance, co-op spokeswoman Nikki Dunn said.

Lillie said a recent survey concluded the entire Keys produces an average of about 8,000 gallons per week of used cooking oil, which processed would result in about 7,600 gallons of biodiesel.

But getting all restaurants on board is not an easy task. Most sell their used cooking oil and fat to companies that use it for a variety of products, including chicken feed, makeup and dryer sheets.

Lillie also has solicited donated oil from the public, providing information on his website www.marathon-biodiesel.com. The Sugarloaf Volunteer Fire Department donated six gallons from a recent fish fry and a woman in her 80s drove up from Key West to give a jar that was half full.

Lillie hugged the woman. His company's motto: "Protecting the environment one drop at a time."